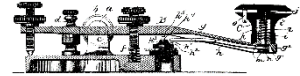




Bexar Wire

San Antonio Radio Club
W5SC



2018, No. 4

April 2018



David Finnell, N7LRY, making his presentation at the March 8, 2018, General Membership Meeting on his Mega Cheap HF Software Defined Radio



David Finnell, N7LRY, receiving a Program Certificate of Appreciation from Harold Fleischer, AE5AS, President, SARC, after his presentation at the SARC meeting on March 8, 2018

Software Define Radio

Our last meeting at Grady's Barbeque, 327 E. Nakoma Dr., San Antonio, TX 78216 at 7:00 p. m. on Thursday, March 8, 2018, featured a presentation by David Finnell, N7LRY, on a Software Defined Radio. A Software Defined Radio is one where instead of using electronics, vacuum tube or solid state, to do most signaling processing functions software is used by computer processor to do all signal processing. His Mega Cheap HF SDR is based on the RS-HFIO by Hobby. This is a kit that David N7LRY put together. He made his first QSO on 29M on January 21, 2018 with a station in Arizona. A copy of his viewgraphs appears as a separate article starting on Page 6.

After David N7LRY completed his presentation, he was thanked by Mike Harrison, KD5KST, on behalf of all members present. The President then presented him with a Program Certificate of Appreciation.



David N7LRY and his ADR

Officer and Committee reports were generally routine and are shown in the minutes starting on Page 3. Key highlights were Radio Fiesta is a go for January 12, 2019. Additionally, the Field Day Antenna 2018 policy was reviewed with all members with the key point being only personal and SARC antennas likely to be used will be erected.

Beverage Antenna

Our next club meeting will be at 7:00 p. m. (1900) on Thursday, April 12, 2018, at Grady's Barbeque, 327 E. Nakoma Dr., San Antonio, TX 78216. The program will be presented by Tom O'Brien, AB5XZ, on the Beverage Antenna.

SAN ANTONIO RADIO CLUB PRESIDENT'S RADIOGRAM

NUMBER	PRECEDENCE	HX	STATION OF ORIGIN	CHECK	PLACE OF ORIGIN	TIME FILED	DATE
4	R		AE5AS		San Antonio, TX		Apr.
TO W5SC Last month, I said that February is reset month. In March 2018, we started the transition to Field Day 2018. The sharing of the Field Day Antenna 2018 policy with all members was one step in that start. Joe Bruno, W5AUQ, hosted a generator party since the March 8, 2018 meeting. Rich roudebush, N4DCA, and myslef hauled out all of the generators and yellow standing lights. Three of the four generators run well. The fourth, as we knew, from last fall needed work. Joe W5AUQ is all over that. All the lights worked. We also laid out how to use our cases to haul SARC radios. The paper boxes are beginning to fray. This problem needs only 2-3 hours of work, and it will be solved and ready for Field Day 2018. Field Day will probably be the focus of the President's Radiogram for the next few months. That is not to say that other things will not be going on. One of the things going on is Volunteer Examiner Test Sessions. Mostly, this is an item I do not worry about. Pat Knoight, AD5BR, takes cares of this. I just show up when I can as a VE. Note that I said takes care of, not worry. She is organized and on top of this so no one worries. One of the things going on is the website. Bill Craft, KD2HIQ, owes it, Facebook, and Twitter. I mostly just look at it and make suggestions from time to time. Bill KD2HIQ is making these work for SARC. I am sure that there are other members doing things every month for all of us in SARC and the wider amateur radio community. (I wrote about Mike Harrison, KB5KST, along these lines las month.   AE5AS							

Bexar Wire

Published monthly by:
San Antonio Radio Club

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President

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The due date for articles is the Friday before the first Monday of the month.

- Encourage members to bring personal antennas for integration into the antenna plan for Field Day.
- Put up only four SARC antennas (Beam on trailer, 40M and 75M dipole, and VHF/UHF).
- Put up any other SARC antenna for which a member wants to be the crew leader to set up.
- The Board passed a series of motions on Radio Fiesta having mostly to do with pricing policies, but refund policies were also established. There will be a Radio Fiesta 2019 at the Schertz Convention Center.

Committee Reports

Education and Training – Bob Rodriguez, K5AUW, with assistance from Joe Bruno, W5AUQ, finished the Technician Class for CERTS on Saturday, February 10, 2018 at the Learn CPR & First Aid Training Office. The VEs held the Technician Class immediately upon completion and 8 of 11 candidates passed. Everyone who passed was part of a raffle for a handheld transceiver donated by Cray Lester, K5MUG.

The plans for the General Class are on hold. He is working scheduling issues and hopes to announce the details at the next meeting.

Emergency Communications – Report for JC Smith, N5RXS:

A SKYWARN Class will be held in March 24, 2018 at Incarnate Word from 9 a. m. to 1 p. m. It will be in Room 129 of the Bonilla Science Hall.

Executive – No meetings since last month. However, a budget was coordinated for March 1, 2018-Feb 28, 2019 to support the Board of Directors Meeting on February 22, 2018.

Field Day – Joe Bruno, W5AUQ, Chairperson, was absent, and the President reported on his behalf. He reviewed the antenna policy for Field Day passed by the Board:

1. SARC will include in the antenna plan any and all personal antennas that a member wants to erect provided they are reported to the Chairperson, Field Day Committee by May 31, 2018.
2. SARC will include all personal antennas brought to Field Day without previous notification to the Chairperson, Field Day Committee, and assign them to open, probably peripheral areas in the integrated plan.
3. SARC will erect the following SARC owned antennas:
 - Trailer mounted Beam Antenna on Tower for 10M/15M/20M
 - 40M Dipole Antenna (same antenna mast at 40M dipole)
 - 75M Dipole Antenna (same antenna mast at 40M dipole)
 - MFJ-1522 VHF/UHF Dual Band Vertical Antenna
4. SARC will bring out any other SARC owned antennas if someone wants to use it, sponsor it, and becomes the crew leader for its erection:
 - Cushcraft R-7 Vertical Antenna for 10M/15M/20M/40M
 - Cushcraft R-5 Vertical Antenna for 10M/15M/20M (SARC has two of these.)
 - 6M Dipole
 - 10M Dipole
 - 15M Dipole
 - 20M Dipole
 - 75M Dipole (second one)
 - G5RV Antenna

Finance and Review – Paul Guido, N5IUT, has not yet started, but plans to this weekend.

JOTA – no report.

Membership – Tom O'Brien, AB5XZ, reported at the meeting that so far had 89 members for 2018 with 88 paid and 1 free. Additionally, 4 are paid for 2019.

He does have a lead on how to download new hams via ARRL that he will follow-up on.

Nominating - inactive

Radio Fiesta – JC Smith, N5RXS, had a conflict and could not be here tonight. There will be a Radio Fiesta 2019, and the President hand carried a letter to the Schertz Convention Center to confirm our reservation for Saturday, January 12, 2019 with setup the day before.

VEC – There were three test sessions in February 2018:

- On February 10, 2018 a session was done for the Technician Class led by Bob Rodriguez, K5AUW, and 8 of 11 candidates got Technician licenses
- On February 24, 2018, the regular session was done at the Great Northwest Library, and 2 of 3 candidates got Technician licenses. One candidate took elements 2 and 3 and got a General license.
- On February 24, 2018 in the afternoon at the HAMster Lunch and Learn, 1 of 3 candidates got a Technician license.

A test session is scheduled for 10:00 a. m. on April 24, 2018, at the Great Northwest Library.
Centennial Commemoration (Temporary) - Tom O'Brien, AB5XZ, held a meeting on March 5, 2018. There were seven people there.

The committee has decided that time is too short to do something as a part of SA300 so no more effort will be expended on that.

Action items were identified:

- The founding date is in 2019, but someone is working on QST archives to see if the date can be better identified.
- Committee members were asked to submit logo recommendations. All members of SARC are invited to submit logo recommendations. The suggested elements are 1919-2019, the Alamo, the ARRL Logo, and a radio tower.
- Lloyd Swartz, KF5ZHW, has been asked to look at doing a special event at the Institute of Texas Culture.
- Paul Guido, N5IUT, has agreed to look at doing a special event at the Hemisphere Plaza.
- Cray Lester, K5MUG, has agreed to look at doing a special event at the San Jose Mission or one of the other ones.
- Joe Brun, W5AUQ, is going to look for the old W5SC QSL cards in the storage area.

CW Training (Temporary) – Joe Bruno, W5AUQ, is still working on getting this going. One prospective participant has injured himself such that travel is a problem for them.

Tailgate Swap Meet Committee (Temporary) – Richard Elder, WB5ACN, reported that the next tailgate swap meet has been set up for March 24, 2018 from 7-11 a. m. at Hangar 18 Surplus.

Old Business (Motions carried over from previous meetings) - None

New Business (Must be presented as a motion) – None

Announcements for The Good of Amateur Radio

Rosendo M. Guzman, Jr., N5YBG, announced that the San Antonio Digital Radio Club will be meeting March 17, 2018 at the McAllister Dog Park.

The meeting was adjourned at 8:42 p. m.

Eric Harris, KG5SZV
Secretary



Next License Test on Saturday, April 24, 2018

Pat Knight, AD5BR, Chairperson, Volunteer Examination Committee, and several the members of that committee will be conducting amateur radio license examines on Saturday, April 24, 2018. The test session will start at 10:00 a. m. at the Great Northwest Library. This test session is open to the public although pre-registration is encouraged. There is a \$15 FCC authorized fee.

Mega Cheap HF Software Defined Radio

These are the slides, other than the one with video that, David Finnell, N7LRY, used during his presentation on his Software Defined Radio. Upon request, the editor can send the Power Point file to you.

Mission Impossible

Build a full featured, self contained, HF Software Defined Radio (SDR) transceiver for less than \$600.



First off, What is a Software designed radio?

Software Defined Radio (SDR) is a radio where components that have traditionally been implemented in hardware are instead implemented by means of software.

Think of an SDR as a soundcard that operates at RF frequencies and the software creates or analyzes the given waveform in a manner that conforms to standard modulation techniques. The software determines what modes and features the radio has.

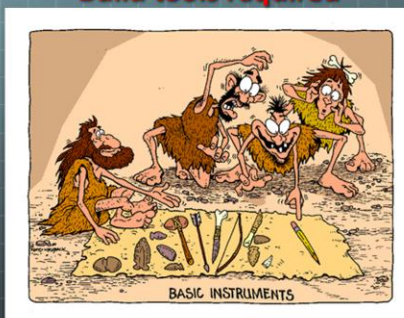
The Mega Cheap HF SDR Transceiver Features

- Standalone compact embedded transceiver
- Continuous RX coverage 2-30 MHz *
- 5W output power *
- CW, SSB, AM and FM Transmit and Receive
- 300/500 Hz & 1.8/2.3 kHz SSB filters with adjustable passband centering
- 3.6kHz "wide" plus 5, 6, 7, 5, or 10 kHz "extra wide" filters for SSB/AM reception
- SSB/AM speech processor
- DSP noise reduction – DSP automatic notch filter
- Spectrum scope
- Waterfall display
- Highly configurable with a wide variety of menu options

The Mega Cheap HF SDR Transceiver

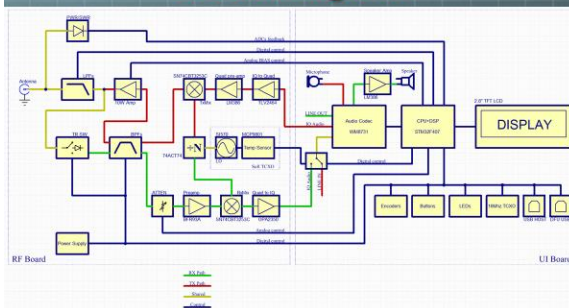
- V 0.7 Kit £298.13 including shipping
- Finals \$20.00
- Enclosure ~\$100
- Supplies ~\$25.00

The Mega Cheap HF SDR Build tools required



- ESD safe work environment
 - Good quality soldering station – SMT rework station a plus.
 - 63/37 solder, flux, wick, sucker, side cutters, tweezers, fine needle-nose pliers, etc.
 - Optical aids – Magnifiers, Microscope, Loupes.
 - Calipers
 - Nibbler
 - Files
 - Technical grade alcohol with lotion bottle – cotton swabs – acid brushes
- Recommended test equipment-----
- Multimeter
 - Capacitor-Inductor meter/analyzer
 - Network analyzer/Spectrum analyzer
 - Scope

The Mega Cheap HF SDR Block Diagram



The Mega Cheap HF SDR What it's not

- A refined commercial transceiver
- Beginner kit or radio
- A straight forward build
- A thru hole component kit – most components are SMT
- A finished project – There are bugs and improvements to be made that you are expected to accomplish
- Bug free

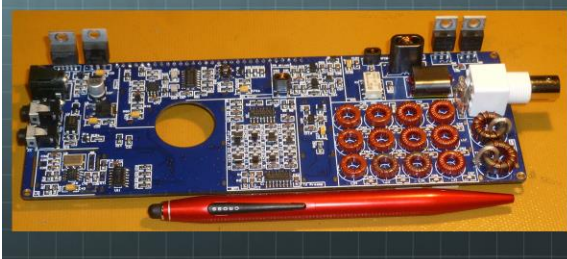
The Mega Cheap HF SDR The V 0.6 Build



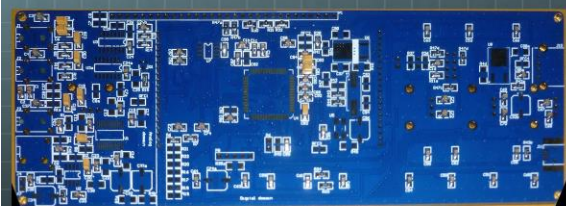
The Mega Cheap HF SDR RF Board Post first caps



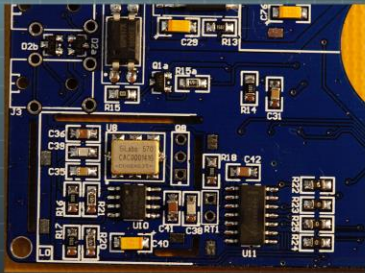
The Mega Cheap HF SDR Completed RF Board



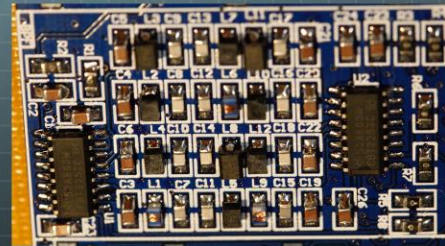
The MCHF SDR UI Board post first components



The Mega Cheap HF SDR Local Oscillator



The Mega Cheap HF SDR Band Pass Filter



The Mega Cheap HF SDR Microcontroller/CPU



The Mega Cheap HF SDR Did I say fine soldering



The Mega Cheap HF SDR It's Alive !!!!!



The Mega Cheap HF SDR Problems Encountered



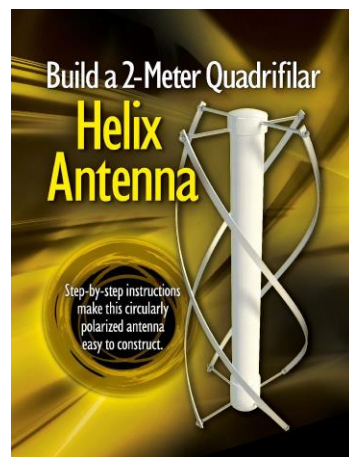
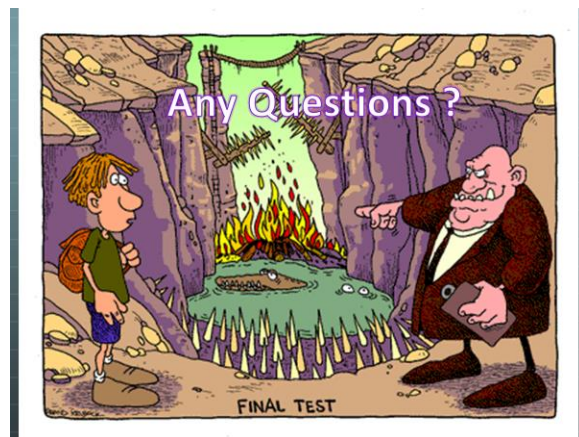
- Small components flying out of tweezers to universes unknown
- High density component placement made soldering components challenging
- Shaky Hands
- Stripping fine magnet wire
- Getting proper inductance out of LPF toroids
- Inadequate 10-15M LPF design
- Inadequate PA output transformer design
- Software learning curve
- Chinese case issues
- Touch Screen

The Mega Cheap HF SDR First QSO - 21 Jan 2018

- Band 20M
- Freq ~14.262
- Other station – K7B London Bridge ARA Lake Havasu City, AZ
- Condition S8 noise – pileup – varying band conditions
- Signal Report 5/9

HF Transceiver kit cost/feature comparisons

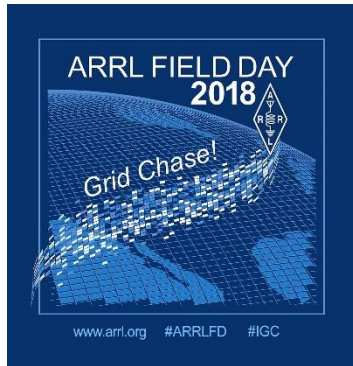
Kit Name	Price
Mega Cheap HF SDR Kit	\$361.02 including shipping
Planals	\$20.00
Supplies	~\$25.00
Total	~\$50.28
Base Kit	\$754.95
SSB option	\$169.95
160M option	\$79.95
Noise Blanker	\$69.95
DSP	DISCONTINUED
Audio Filter	\$99.95
Serial interface	\$99.95
USB adaptor	\$39.95
Supplies	\$25.00
Total	~\$1339.95



2M Quadrifilar Helix Antenna

David Finnell, N7LRY, made a presentation on his Quadrifilar Helix Antenna for 2M on October 12, 2017, at our General Membership Meeting. He was the second-place winner in the 2017 QST Antenna Design Competition, 6 Meters and Higher Frequencies category with this antenna design. He expected that QST would publish the design sometime in 2018. **That time has arrived!**

A five-page article starting on page 38 of the May 2018 QST covers his antenna design. If you are an ARRL member, the digital version of the May 2018 QST is already available on-line.



Field Day 2018 Antennas

Reminder: The following policies concerning Field Day 2018 antennas apply:

1. SARC will include in the antenna plan any and all personal antennas that a member wants to erect provided they are reported to the Chairperson, Field Day Committee by May 31, 2018.
2. SARC will include all personal antennas brought to Field Day without previous notification to the Chairperson, Field Day Committee, and assign them to open, probably peripheral areas in the integrated plan.
3. SARC will erect the following SARC owned antennas:
 - Trailer mounted Beam Antenna on Tower for 10M/15M/20M
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 - 75M Dipole Antenna (same antenna mast at 40M dipole)
 - MFJ-1522 VHF/UHF Dual Band Vertical Antenna
4. SARC will bring out any other SARC owned antennas if someone wants to use it, sponsor it, and becomes the crew leader for its erection:
 - Cushcraft R-7 Vertical Antenna for 10M/15M/20M/40M
 - Cushcraft R-5 Vertical Antenna for 10M/15M/20M (SARC has two of these.)
 - 6M Dipole
 - 10M Dipole
 - 15M Dipole
 - 20M Dipole
 - 75M Dipole (second one)
 - G5RV Antenna

SARC owns sufficient antenna masts that it can put up almost everything that it owns. SARC has sufficient guide ropes that it is not a problem either. SARC may even be able to lend some poles and ropes to erect personal antennas if the need is identified ahead of time.

Typically, members gang together to put up antennas whether they are personal ones or SARC owned. It is one of the better aspects of Field Day – hams helping each other out. SARC does not want to see effort expended on putting up a lot of SARC antennas where some are never used.

To summarize:

- If you have a personal antenna that you want to bring to Field Day, bring it.
- If you want to use a SARC antenna that is not in the plan yet to erect, volunteer to be the sponsoring crew leader to set it up and take it down.

Ham Tailgate Swap Meet

Sponsored by Hangar 18 Surplus



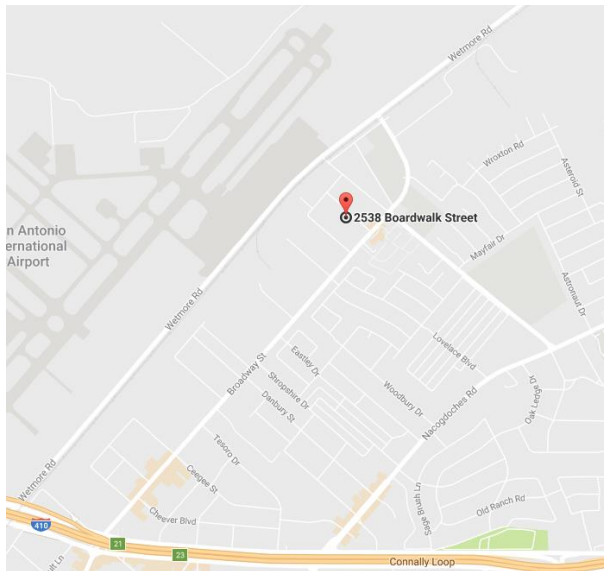
**Saturday, April 28, 2018, from 7 a. m. until 11:00 a. m.
Coffee and Donuts**



Location: Hangar 18 Surplus
2538 Boardwalk
San Antonio, TX 78217

Hangar 18 Surplus carries a wide selection of coax adapters, cables, and the \$1.00/pound electronic chassis/things to be repaired. For the Ham Tailgate Swap Meet, Hangar 18 Surplus will also have a trailer with a selection of used, empty transit cases suitable for use by Hams as GO-KITS and outdoor cabinets suitable for use by Hams for antenna tuners. The cases will be priced at \$1.00/pound.

Hangar 18 Surplus has many embroidered hats and shirts available from an additional product line in which they also do business.



Yahoo Groups

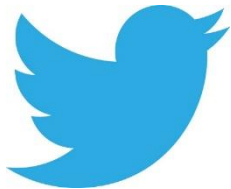


SARC has had a Yahoo Group for a number of years now. Its name is W5SC.

W5SC is being used to publicize SARC business meetings. It can be used for other things like promotion of VEC testing and classes. Members of the W5SC Yahoo Group can and have asked each other technical questions or sought assistance.

W5SC is a closed group. To become a member, go to groups.yahoo.com. (You may need to have a Yahoo account.) This will take you to a website where your groups, if any, are shown with a Search Group box at the top. Enter W5SC. This will take you to the search results page with W5SC on it. Select W5SC to go to the W5SC Yahoo Group. You will then need to select + *Join Group*. This generates a message. SARC members can expect approval to join the W5SC in probably less than 24 hours.

SARC Tweets



Reminder: there are two active Twitter accounts for the San Antonio Radio Club. They are @SARadioClub and @ARadioFiesta.

The @SARadioClub is being used to publicize SARC meetings. It can be used for other things like promotion of VEC testing and classes.

As Radio Fiesta 2017 work has commenced, the @ARadioFiesta is being used again for the January 14, 2017 Radio Fiesta.

SARC members are encouraged to follow both Twitter accounts.

SARC Facebook



There is a San Antonio Radio Club – SARC (@saradioclub) Facebook Page.

The newsletter editor is making posts about SARC meetings and other activities. Any Officer, Committee Chairperson, or member who believes that they have information that should be posted to this page should contact the newsletter editor using the contact information for the newsletter editor on page 2 of this newsletter.

SARC members are encouraged to follow this Facebook Page.

SARC SLACK



There is a San Antonio Radio Club Slack team – w5sc.slack.com.

Slack teams are meant to foster communication between team members. Paul Guido, N5IUT, has established the w5sc.slack.com team for SARC. He has also established some channels. Think of the channels as topical areas.

To join send an email to Paul Guido, N5IUT, at radioteacher@gmail.com. In actuality, any team member already a part of the w5sc.slack.com can invite you, but Paul is known to be on it.

SARC has a website:

w5sc.org

Webmaster: Bill Craft KD2HIQ
Billc851@gmail.com
210-233-8863

Amateur Radio License Classes

A General Course is currently being planned. More information will be included when available.

As this class's plans firm up, they will be summarized here.

SARC Meeting Dates for next 12 Months

April 12, 2018
May 10, 2018
June 14, 2018
July 12, 2018
August 9, 2018
September 13, 2018
October 11, 2018
November 8, 2018
December (None)
January 10, 2019
February 14, 2019
March 14, 2019

Meetings are held at Grady's Barbeque, 327 E. Nakoma Dr., San Antonio, TX 78216 at 7:00 p. m.

Come early and eat with other members coming early.

License Testing Dates for 2018

April 28, 2018
June 23, 2018
August 25, 2018
October 27, 2018
January 12, 2019
February 23, 2019

Times and locations along with required document information can be found on SARC's website.

SARC does all its licensing testing as a part of ARRL Volunteer Examiner Coordinator (VEC) organization so all the Volunteer Examiners in SARC are duly authorized Volunteer Examiners of ARRL's VEC.

Field Day 2018

Setup: Friday, June 22, 2018
Operations: Saturday, June 23, 2018
& Sunday, June 24, 2018

Where SARC proves they are an eating group with a radio problem.

More information to follow, but hold these dates.

JOTA

Boy Scout Jamboree On The Air

This year's date is Oct 20, 2018. The plan is to again hold it at the Texas Transportation Museum.

For more information, contact:
Gary (Mike) Harrison, KB5KST

Radio Fiesta 2019

January 12, 2019
Schertz Civic Center
See newsletter article for more information

Emergency Communications

If you are interested in emergency communications, contact:
JC Smith N5RXS